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Sequence Listing was accepted.
If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).
Reviewer: Durreshwar Anjum
Timestamp: [year=2010; month=11; day=23; hr=13; min=16; sec=25; ms=443;]
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Validated By CRFValidator v 1.0.3

Application No: 10723908 Version No: 4.0

Input Set:

Output Set:

Started: 2010-11-15 17:50:32.116
Finished: 2010-11-15 17:50:35.803
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 687 ms
Total Warnings: 59
Total Errors: 0
No. of SeqIDs Defined: 59
Actual SeqID Count: 59

Error code	Error Description
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W 402	Undefined organism found in <213> in SEQ ID (2)
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W 402	Undefined organism found in <213> in SEQ ID (10)
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W 402	Undefined organism found in <213> in SEQ ID (18)
W 402	Undefined organism found in <213> in SEQ ID (19)
W 402	Undefined organism found in <213> in SEQ ID (20)

Input Set:

Output Set:

Started: 2010-11-15 17:50:32.116
Finished: 2010-11-15 17:50:35.803
Elapsed: 0 hr(s) 0 min(s) 3 sec(s) 687 ms
Total Warnings: 59
Total Errors: 0
No. of SeqIDs Defined: 59
Actual SeqID Count: 59

Error code	Error Description
	This error has occured more than 20 times, will not be displayed
W 213	Artificial or Unknown found in <213> in SEQ ID (32)
W 213	Artificial or Unknown found in <213> in SEQ ID (33)
W 213	Artificial or Unknown found in <213> in SEQ ID (34)
W 213	Artificial or Unknown found in <213> in SEQ ID (35)
W 213	Artificial or Unknown found in <213> in SEQ ID (36)
W 213	Artificial or Unknown found in <213> in SEQ ID (37)
W 213	Artificial or Unknown found in <213> in SEQ ID (38)
W 213	Artificial or Unknown found in <213> in SEQ ID (39)
W 213	Artificial or Unknown found in <213> in SEQ ID (40)
W 213	Artificial or Unknown found in <213> in SEQ ID (41)
W 213	Artificial or Unknown found in <213> in SEQ ID (42)
W 213	Artificial or Unknown found in <213> in SEQ ID (43)
W 213	Artificial or Unknown found in <213> in SEQ ID (44)
W 213	Artificial or Unknown found in <213> in SEQ ID (45)
W 213	Artificial or Unknown found in <213> in SEQ ID (46)
W 213	Artificial or Unknown found in <213> in SEQ ID (48)
W 213	Artificial or Unknown found in <213> in SEQ ID (49)
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W 213	Artificial or Unknown found in <213> in SEQ ID (51)
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	This error has occured more than 20 times, will not be displayed

SEQUENCE LISTING

<110> STATENS SERUM INSTITUT
ANDERSEN, Peter
SKJOT, Rikke Louise Vinther

<120> TUBERCULOSIS VACCINE AND DIAGNOSTICS BASED ON THE MYCOBACTERIUM TUBERCULOSIS SAT-6 GENE FAMILY

<130> 0459-0752P

<140> 10723908
<141> 2010-11-15

<160> 59

<170> PatentIn 2.0

<210> 1
<211> 100
<212> PRT
<213> M. tuberculosis

<400> 1

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 1               5                  10                  15
Asn Phe Glu Arg Ile Ser Gly Asp Leu Lys Thr Gln Ile Asp Gln Val
            20                  25                  30
Glu Ser Thr Ala Gly Ser Leu Gln Gly Gln Trp Arg Gly Ala Ala Gly
        35                  40                  45
Thr Ala Ala Gln Ala Ala Val Val Arg Phe Gln Glu Ala Ala Asn Lys
    50                  55                  60
Gln Lys Gln Glu Leu Asp Glu Ile Ser Thr Asn Ile Arg Gln Ala Gly
65                  70                  75                  80
Val Gln Tyr Ser Arg Ala Asp Glu Glu Gln Gln Gln Ala Leu Ser Ser
                85                  90                  95
Gln Met Gly Phe
            100
```

<210> 2
<211> 95
<212> PRT
<213> M. tuberculosis

<400> 2

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Met Thr Glu Gln Gln Trp Asn Phe Ala Gly Ile Glu Ala Ala Ala Ser
 1               5                  10                  15
Ala Ile Gln Gly Asn Val Thr Ser Ile His Ser Leu Leu Asp Glu Gly
            20                  25                  30
Lys Gln Ser Leu Thr Lys Leu Ala Ala Ala Trp Gly Gly Ser Gly Ser
        35                  40                  45
Glu Ala Tyr Gln Gly Val Gln Gln Lys Trp Asp Ala Thr Ala Thr Glu
    50                  55                  60
Leu Asn Asn Ala Leu Gln Asn Leu Ala Arg Thr Ile Ser Glu Ala Gly
65                  70                  75                  80
```

```
 Gln Ala Met Ala Ser Thr Glu Gly Asn Val Thr Gly Met Phe Ala
                 85                  90                  95

<210> 3
<211> 96
<212> PRT
<213> M. tuberculosis

<400> 3
 Met Ser Gln Ile Met Tyr Asn Tyr Pro Ala Met Leu Gly His Ala Gly
  1               5                  10                  15
 Asp Met Ala Gly Tyr Ala Gly Thr Leu Gln Ser Leu Gly Ala Glu Ile
             20                  25                  30
 Ala Val Glu Gln Ala Ala Leu Gln Ser Ala Trp Gln Gly Asp Thr Gly
         35                  40                  45
 Ile Thr Tyr Gln Ala Trp Gln Ala Gln Trp Asn Gln Ala Met Glu Asp
     50                  55                  60
 Leu Val Arg Ala Tyr His Ala Met Ser Ser Thr His Glu Ala Asn Thr
 65                  70                  75                  80
 Met Ala Met Met Ala Arg Asp Thr Ala Glu Ala Ala Lys Trp Gly Gly
                 85                  90                  95

<210> 4
<211> 294
<212> DNA
<213> M. tuberculosis

<220>
<221> CDS
<222> (1)...(294)

<400> 4
 atg agc ctt ttg gat gct cat atc cca cag ttg gtg gcc tcc cag tcg       48
 Met Ser Leu Leu Asp Ala His Ile Pro Gln Leu Val Ala Ser Gln Ser
  1               5                  10                  15

 gcg ttt gcc gcc aag gcg ggg ctg atg cgg cac acg atc ggt cag gcc       96
 Ala Phe Ala Ala Lys Ala Gly Leu Met Arg His Thr Ile Gly Gln Ala
             20                  25                  30

 gag cag gcg gcg atg tcg gct cag gcg ttt cac cag ggg gag tcg tcg      144
 Glu Gln Ala Ala Met Ser Ala Gln Ala Phe His Gln Gly Glu Ser Ser
         35                  40                  45

 gcg gcg ttt cag gcc gcc cat gcc cgg ttt gtg gcg gcg gcc gcc aaa      192
 Ala Ala Phe Gln Ala Ala His Ala Arg Phe Val Ala Ala Ala Ala Lys
     50                  55                  60

 gtc aac acc ttg ttg gat gtc gcg cag gcg aat ctg ggt gag gcc gcc      240
 Val Asn Thr Leu Leu Asp Val Ala Gln Ala Asn Leu Gly Glu Ala Ala
 65                  70                  75                  80

 ggt acc tat gtg gcc gcc gat gct gcg gcc gcg tcg acc tat acc ggg      288
 Gly Thr Tyr Val Ala Ala Asp Ala Ala Ala Ala Ser Thr Tyr Thr Gly
                 85                  90                  95

 ttc tga                                                             294
```

Phe

<210> 5
<211> 97
<212> PRT
<213> M. tuberculosis

<400> 5

Met	Ser	Leu	Leu	Asp	Ala	His	Ile	Pro	Gln	Leu	Val	Ala	Ser	Gln	Ser
1				5				10					15		
Ala	Phe	Ala	Ala	Lys	Ala	Gly	Leu	Met	Arg	His	Thr	Ile	Gly	Gln	Ala
		20					25					30			
Glu	Gln	Ala	Ala	Met	Ser	Ala	Gln	Ala	Phe	His	Gln	Gly	Glu	Ser	Ser
	35					40					45				
Ala	Ala	Phe	Gln	Ala	Ala	His	Ala	Arg	Phe	Val	Ala	Ala	Ala	Ala	Lys
50					55					60					
Val	Asn	Thr	Leu	Leu	Asp	Val	Ala	Gln	Ala	Asn	Leu	Gly	Glu	Ala	Ala
65				70					75					80	
Gly	Thr	Tyr	Val	Ala	Ala	Asp	Ala	Ala	Ala	Ala	Ser	Thr	Tyr	Thr	Gly
			85					90					95		

Phe

<210> 6
<211> 339
<212> DNA
<213> M. tuberculosis

<220>
<221> CDS
<222> (1)...(339)

<400> 6

ttg	atc	ccc	ggt	cgg	atg	gtg	ctg	aac	tgg	gaa	gat	ggc	ctc	aat	gcc
Leu	Ile	Pro	Gly	Arg	Met	Val	Leu	Asn	Trp	Glu	Asp	Gly	Leu	Asn	Ala
1				5				10					15		

ctt	gtt	gcg	gaa	ggg	att	gag	gcc	atc	gtg	ttt	cgt	act	tta	ggc	gat
Leu	Val	Ala	Glu	Gly	Ile	Glu	Ala	Ile	Val	Phe	Arg	Thr	Leu	Gly	Asp
		20					25					30			

cag	tgc	tgg	ttg	tgg	gag	tcg	ctg	ctg	ccc	gac	gag	gtg	cgc	cga	ctg
Gln	Cys	Trp	Leu	Trp	Glu	Ser	Leu	Leu	Pro	Asp	Glu	Val	Arg	Arg	Leu
		35					40					45			

ccc	gag	gaa	ctg	gcc	cgg	gtg	gac	gca	ttg	ttg	gac	gat	ccg	gcg	ttc
Pro	Glu	Glu	Leu	Ala	Arg	Val	Asp	Ala	Leu	Leu	Asp	Asp	Pro	Ala	Phe
	50					55					60				

ttc	gcc	ccg	ttc	gtg	ccg	ttc	ttc	gac	ccg	cgc	agg	ggc	cgg	ccg	tcg
Phe	Ala	Pro	Phe	Val	Pro	Phe	Phe	Asp	Pro	Arg	Arg	Gly	Arg	Pro	Ser
65				70					75					80	

acg	ccg	atg	gag	gtc	tat	ctg	cag	ttg	atg	ttt	gtg	aag	ttc	cgc	tac
Thr	Pro	Met	Glu	Val	Tyr	Leu	Gln	Leu	Met	Phe	Val	Lys	Phe	Arg	Tyr

```
                 85                  90                  95

 cgg ctg ggc tat gag tcg ctg tgc cgg gag gtg gct gat tcg atc acc      336
 Arg Leu Gly Tyr Glu Ser Leu Cys Arg Glu Val Ala Asp Ser Ile Thr
             100                 105                 110

 tga                                                                  339

<210> 7
<211> 112
<212> PRT
<213> M. tuberculosis

<400> 7
 Met Ile Pro Gly Arg Met Val Leu Asn Trp Glu Asp Gly Leu Asn Ala
  1               5                  10                  15
 Leu Val Ala Glu Gly Ile Glu Ala Ile Val Phe Arg Thr Leu Gly Asp
             20                  25                  30
 Gln Cys Trp Leu Trp Glu Ser Leu Leu Pro Asp Glu Val Arg Arg Leu
         35                  40                  45
 Pro Glu Glu Leu Ala Arg Val Asp Ala Leu Leu Asp Asp Pro Ala Phe
     50                  55                  60
 Phe Ala Pro Phe Val Pro Phe Phe Asp Pro Arg Arg Gly Arg Pro Ser
 65                  70                  75                  80
 Thr Pro Met Glu Val Tyr Leu Gln Leu Met Phe Val Lys Phe Arg Tyr
                 85                  90                  95
 Arg Leu Gly Tyr Glu Ser Leu Cys Arg Glu Val Ala Asp Ser Ile Thr
             100                 105                 110

<210> 8
<211> 285
<212> DNA
<213> M. tuberculosis

<220>
<221> CDS
<222> (1)...(285)

<400> 8
 atg acc atc aac tat caa ttc ggg gac gtc gac gct cac ggc gcc atg       48
 Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp Ala His Gly Ala Met
  1               5                  10                  15

 atc cgc gct cag gcc ggg tcg ctg gag gcc gag cat cag gcc atc att       96
 Ile Arg Ala Gln Ala Gly Ser Leu Glu Ala Glu His Gln Ala Ile Ile
             20                  25                  30

 tct gat gtg ttg acc gcg agt gac ttt tgg ggc ggc gcc ggt tcg gcg      144
 Ser Asp Val Leu Thr Ala Ser Asp Phe Trp Gly Gly Ala Gly Ser Ala
         35                  40                  45

 gcc tgc cag ggg ttc att acc cag ctg ggc cgt aac ttc cag gtg atc      192
 Ala Cys Gln Gly Phe Ile Thr Gln Leu Gly Arg Asn Phe Gln Val Ile
     50                  55                  60

 tac gag cag gcc aac gcc cac ggg cag aag gtg cag gct gcc ggc aac      240
 Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn
```

```
 65                  70                  75                  80

 aac atg gca caa acc gac agc gcc gtc ggc tcc agc tgg gcc taa          285
 Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser Ser Trp Ala
                 85                  90


<210> 9
<211> 94
<212> PRT
<213> M. tuberculosis

<400> 9
 Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp Ala His Gly Ala Met
  1               5                  10                  15
 Ile Arg Ala Gln Ala Gly Leu Leu Glu Ala Glu His Gln Ala Ile Val
             20                  25                  30
 Arg Asp Val Leu Ala Ala Gly Asp Phe Trp Gly Gly Ala Gly Ser Val
         35                  40                  45
 Ala Cys Gln Glu Phe Ile Thr Gln Leu Gly Arg Asn Phe Gln Val Ile
     50                  55                  60
 Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn
 65                  70                  75                  80
 Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser Ser Trp Ala
                 85                  90

<210> 10
<211> 285
<212> DNA
<213> M. tuberculosis

<220>
<221> CDS
<222> (1)...(282)

<400> 10
 atg acc atc aac tat cag ttc ggt gat gtc gac gct cat ggc gcc atg       48
 Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp Ala His Gly Ala Met
  1               5                  10                  15

 atc cgc gct cag gcc ggg ttg ctg gag gcg gag cat cag gcc atc gtt       96
 Ile Arg Ala Gln Ala Gly Leu Leu Glu Ala Glu His Gln Ala Ile Val
             20                  25                  30

 cgt gat gtg ttg gcc gcg ggt gac ttt tgg ggc ggc gcc ggt tcg gtg      144
 Arg Asp Val Leu Ala Ala Gly Asp Phe Trp Gly Gly Ala Gly Ser Val
          35                  40                  45

 gct tgc cag gag ttc att acc cag ttg ggc cgt aac ttc cag gtg atc      192
 Ala Cys Gln Glu Phe Ile Thr Gln Leu Gly Arg Asn Phe Gln Val Ile
      50                  55                  60

 tac gag cag gcc aac gcc cac ggg cag aag gtg cag gct gcc ggc aac      240
 Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn
  65                  70                  75                  80

 aac atg gca caa acc gac agc gcc gtc ggc tcc agc tgg gcc              282
```

```
 Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser Ser Trp Ala
                  85                  90

 tga                                                                    285

<210> 11
<211> 94
<212> PRT
<213> M. tuberculosis

<400> 11
 Met Thr Ile Asn Tyr Gln Phe Gly Asp Val Asp Ala His Gly Ala Met
  1               5                  10                  15
 Ile Arg Ala Gln Ala Gly Leu Leu Glu Ala Glu His Gln Ala Ile Val
             20                  25                  30
 Arg Asp Val Leu Ala Ala Gly Asp Phe Trp Gly Gly Ala Gly Ser Val
         35                  40                  45
 Ala Cys Gln Glu Phe Ile Thr Gln Leu Gly Arg Asn Phe Gln Val Ile
     50                  55                  60
 Tyr Glu Gln Ala Asn Ala His Gly Gln Lys Val Gln Ala Ala Gly Asn
 65                  70                  75                  80
 Asn Met Ala Gln Thr Asp Ser Ala Val Gly Ser Ser Trp Ala
                  85                  90

<210> 12
<211> 327
<212> DNA
<213> M. tuberculosis

<220>
<221> CDS
<222> (1)...(327)

<400> 12
 gtg ctt ttg cct ctt ggt ccg cct ttg ccg ccc gac gcg gtg gtg gcg       48
 Val Leu Leu Pro Leu Gly Pro Pro Leu Pro Pro Asp Ala Val Val Ala
  1               5                  10                  15

 aaa cgg gct gag tcg gga atg ctc ggc ggg ttg tcg gtt ccg ctc agc       96
 Lys Arg Ala Glu Ser Gly Met Leu Gly Gly Leu Ser Val Pro Leu Ser
             20                  25                  30

 tgg gga gtg gct gtg cca ccc gat gat tat gac cac tgg gcg cct gcg      144
 Trp Gly Val Ala Val Pro Pro Asp Asp Tyr Asp His Trp Ala Pro Ala
         35                  40                  45

 ccg gag gac ggc gcc gat gtc gat gtc cag gcg gcc gaa ggg gcg gac      192
 Pro Glu Asp Gly Ala Asp Val Asp Val Gln Ala Ala Glu Gly Ala Asp
     50                  55                  60

 gca gag gcc gcg gcc atg gac gag tgg gat gag tgg cag gcg tgg aac      240
 Ala Glu Ala Ala Ala Met Asp Glu Trp Asp Glu Trp Gln Ala Trp Asn
 65                  70                  75                  80

 gag tgg gtg gcg gag aac gct gaa ccc cgc ttt gag gtg cca cgg agt      288
 Glu Trp Val Ala Glu Asn Ala Glu Pro Arg Phe Glu Val Pro Arg Ser
                  85                  90                  95
```

```
 agc agc agc gtg att ccg cat tct ccg gcg gcc ggc tag                  327
 Ser Ser Ser Val Ile Pro His Ser Pro Ala Ala Gly
             100                 105


<210> 13
<211> 108
<212> PRT
<213> M. tuberculosis

<400> 13
 Met Leu Leu Pro Leu Gly Pro Pro Leu Pro Pro Asp Ala Val Val Ala
  1               5                  10                  15
 Lys Arg Ala Glu Ser Gly Met Leu Gly Gly Leu Ser Val Pro Leu Ser
             20                  25                  30
 Trp Gly Val Ala Val Pro Pro Asp Asp Tyr Asp His Trp Ala Pro Ala
         35                  40                  45
 Pro Glu Asp Gly Ala Asp Val Asp Val Gln Ala Ala Glu Gly Ala Asp
     50                  55                  60
 Ala Glu Ala Ala Ala Met Asp Glu Trp Asp Glu Trp Gln Ala Trp Asn
 65                  70                  75                  80
 Glu Trp Val Ala Glu Asn Ala Glu Pro Arg Phe Glu Val Pro Arg Ser
                 85                  90                  95
 Ser Ser Ser Val Ile Pro His Ser Pro Ala Ala Gly
             100                 105

<210> 14
<211> 324
<212> DNA
<213> M. tuberculosis

<220>
<221> CDS
<222> (1)...(324)

<400> 14
 ttg acc cac aag cgc act aaa cgc cag cca gcc atc gcc gca ggg ctc       48
 Leu Thr His Lys Arg Thr Lys Arg Gln Pro Ala Ile Ala Ala Gly Leu
  1               5                  10                  15

 aac gcc ccg cgt cgg aat cgc gtt ggg cgg caa cat ggt tgg ccg gcc       96
 Asn Ala Pro Arg Arg Asn Arg Val Gly Arg Gln His Gly Trp Pro Ala
              20                  25                  30

 gac gtt ccg tcc gcc gag cag cgc cgc gcc caa cgg cag cgc gac ctc      144
 Asp Val Pro Ser Ala Glu Gln Arg Arg Ala Gln Arg Gln Arg Asp Leu
          35                  40                  45

 gag gct atc cgc cga gcg tac gcc gag atg gtg gcg aca tca cac gaa      192
 Glu Ala Ile Arg Arg Ala Tyr Ala Glu Met Val Ala Thr Ser His Glu
      50                  55                  60

 atc gac gac gac aca gcc gaa ctg gcg ctg ttg tcg atg cat ctc gac      240
 Ile Asp Asp Asp Thr Ala Glu Leu Ala Leu Leu Ser Met His Leu Asp
  65                  70                  75                  80
```

```
 gat gag cag cgc cgg ctt gag gcg ggg atg aag ctc ggc tgg cat ccg      288
 Asp Glu Gln Arg Arg Leu Glu Ala Gly Met Lys Leu Gly Trp His Pro
                  85                  90                  95

 tat cac ttc ccc gac gaa ccc gac agc aaa cag tga                    324
 Tyr His Phe Pro Asp Glu Pro Asp Ser Lys Gln
             100                 105
```

<210> 15
<211> 107
<212> PRT
<213> M. tuberculosis

<400> 15

```
 Met Thr His Lys Arg Thr Lys Arg Gln Pro Ala Ile Ala Ala Gly Leu
  1               5                  10                  15
 Asn Ala Pro Arg Arg Asn Arg Val Gly Arg Gln His Gly Trp Pro Ala
             20                  25                  30
 Asp Val Pro Ser Ala Glu Gln Arg Arg Ala Gln Arg Gln Arg Asp Leu
         35                  40                  45
 Glu Ala Ile Arg Arg Ala Tyr Ala Glu Met Val Ala Thr Ser His Glu
     50                  55                  60
 Ile Asp Asp Asp Thr Ala Glu Leu Ala Leu Leu Ser Met His Leu Asp
 65                  70                  75                  80
 Asp Glu Gln Arg Arg Leu Glu Ala Gly Met Lys Leu Gly Trp His Pro
                 85                  90                  95
 Tyr His Phe Pro Asp Glu Pro Asp Ser Lys Gln
             100                 105
```

<210> 16
<211> 246
<212> DNA
<213> M. tuberculosis

<220>
<221> CDS
<222> (1)...(246)

<400> 16

```
 atg agc ggc cac gcg ttg gct gct cgg acg ttg ctg gcc gcc gcg gac       48
 Met Ser Gly His Ala Leu Ala Ala Arg Thr Leu Leu Ala Ala Ala Asp
  1               5                  10                  15

 gag ctt gtc ggc ggc ccg cca gtc gag gct tcg gcc gcc gcg ctg gcc       96
 Glu Leu Val Gly Gly Pro Pro Val Glu Ala Ser Ala Ala Ala Leu Ala
              20                  25                  30

 ggc gac gcc gcg ggc gca tgg cgg acc gcg gcc gtc gag ctt gcg cga      144
 Gly Asp Ala Ala Gly Ala Trp Arg Thr Ala Ala Val Glu Leu Ala Arg
          35                  40                  45

 gcg ttg gtc cgc gct gtg gcg gag tcg cac ggc gtc gcg gcc gtt ttg      192
 Ala Leu Val Arg Ala Val Ala Glu Ser His Gly Val Ala Ala Val Leu
      50                  55                  60

 ttc gcc gcg acg gcc gcc gcg gcg gcg gcc gtc gac cgg ggt gat ccg      240
```

```
Phe Ala Ala Thr Ala Ala Ala Ala Ala Ala Val Asp Arg Gly Asp Pro
 65                  70                  75
```